08CN8803-21

IN THE CLAIMS

1. (Previously Presented) A data storage media, comprising:

a substrate having a first side comprising a plastic portion, a surface roughness of less than about 10Å, and an axial displacement peak of less than about 500 μ under shock and/or vibration excitation when excited by a 1 G sinusoidal loading, wherein said plastic portion has a thickness of less than about 50μ;

an additional layer having a thickness of less than about 1,000 Å, wherein said additional layer is disposed in physical contact with said plastic portion; and

a magnetic data layer on said additional layer, wherein said magnetic data layer has a coercivity of greater than about 1,500 oersted;

wherein said data layer can be at least partly read from, written to, or a combination thereof by an energy field; and

wherein, when the energy field contacts said data storage media, the energy field is incident upon said data layer before it could be incident upon said substrate.

2. (Previously Presented) The data storage media as in Claim 79, wherein said edge-lift height is less than about 5 μ.

3. (Original) The data storage media as in Claim 2, wherein said edge-lift height is less than about 3 μ.

4. (Original) The data storage media as in Claim 1, wherein said surface roughness is less than about 5 Å.

5. (Original) The data storage media as in Claim 1, wherein said substrate further comprises a mechanical damping coefficient of greater than about 0.04 at a temperature of 24°C.

6. (Original) The data storage media as in Claim 5, wherein said mechanical damping coefficient is greater than about 0.06 at a temperature of 24°C.

7. (Cancelled)

8. (Previously Presented) The data storage media as in Claim 1, wherein said substrate further comprises a radial tilt and tangential tilt independently of less than about 1° each, when measured in a resting state.

9 – 11. (Cancelled)

12. (Original) The data storage media as in Claim 1, wherein said substrate further comprises a first modal frequency greater than an operating frequency.

13 - 14. (Cancelled)

15. (Original) The data storage media as in Claim 1, wherein said substrate further comprises a core having a varied thickness.

16 – 25. (Cancelled)

26. (Previously Presented) The data storage media as in Claim 1, wherein said substrate consists essentially of plastic.

27. (Previously Presented) The data storage media as in Claim 26, wherein said plastic comprises a resin selected from the group consisting of polyvinyl chloride, polyolefins, polyesters, polyimide, polyamides, polysulfones, polyether imides, polyether sulfones, polyphenylene sulfides, polyether ketones, polyether ether ketones, ABS resins, polybutadiene, polyacrylates, polyacrylonitrile, polyacetals, ethylene-vinyl acetate copolymers, polyvinyl acetate, liquid crystal polymers, aromatic polyesters, polyvinyl fluoride, polyvinylidene fluoride, polyvinylidene chloride, and blends, copolymers, mixtures, reaction products, and composites comprising at least one of the foregoing resins.

28. (Previously Presented) The data storage media as in Claim 1, wherein said coercivity is greater than about 2,500 oersted.

29. (Original) The data storage media as in Claim 28, wherein said coercivity is greater than about 3,000 oersted.

30 – 75. (Cancelled)

76. (Previously Presented) The data storage media as in Claim 1, wherein the substrate further comprises another plastic portion disposed on a second side of said substrate opposite said first side.

77. (Previously Presented) The data storage media as in Claim 76, further comprising another data layer disposed on said second side.

78. (Previously Presented) The data storage media as in Claim 77, further comprising another additional layer disposed between said another plastic portion and said another data layer.

79. (Previously Presented) The data storage media as in Claim 1, wherein said substrate further comprises an edge-lift height of less than about 8 μ.

80. (Previously Presented) The data storage media as in Claim 1, wherein said plastic portion comprises a resin selected from the group consisting of polystyrene, polyphenylene ethers, ethylene-tetrafluoroethylene copolymer, tetrafluoroethylene fluorocarbon polymer, and blends, copolymers, mixtures, reaction products, and composites comprising at least one of the foregoing resins.

81. (Previously Presented) The data storage media as in Claim 1, wherein said plastic portion comprises a resin selected from the group consisting of polycarbonate, and blends, copolymers, mixtures, reaction products, and composites comprising polycarbonate.

82. (Previously Presented) The data storage media as in Claim 1, wherein said plastic portion comprises a physical pattern.

83. (Previously Presented) The data storage media as in Claim 1, wherein said substrate further comprises metal.

84. (Previously Presented) The data storage media as in Claim 1, wherein said substrate is selected from the group consisting of metal, glass, ceramic, and combinations comprising at least one of the foregoing substrates,

wherein the plastic portion comprises a physical pattern,

wherein said plastic film has a film thickness of less than about 20 μ; and

wherein said substrate has a substrate thickness of about 0.8 mm to about 1.2 mm.

85. (Previously Presented) The data storage media as in Claim 84, wherein said substrate is metal.

86. (Previously Presented) The data storage media as in Claim 84, wherein said film thickness is about 0.5 μ to about 10 μ.

87. (Previously Presented) The data storage media as in Claim 84, wherein said physical pattern has a depth of about 20 nm to about 30 nm.

88. (Previously Presented) The data storage media as in Claim 84, wherein said substrate is glass.

89. (Previously Presented) A data storage media, comprising:

a substrate having a first side comprising a plastic portion, a surface roughness of less than about 10Å, and an axial displacement peak of less than about 500 μ under shock and/or vibration excitation when excited by a 1 G sinusoidal loading, wherein said plastic portion has a thickness of less than about 50μ; and

a magnetic data layer on said substrate, wherein said data layer is in physical contact with said plastic portion, wherein said magnetic data layer has a coercivity of greater than about 1,500 oersted;

wherein said data layer can be at least partly read from, written to, or a combination thereof by an energy field; and

wherein, when the energy field contacts said data storage media the energy field is incident upon said data layer before it could be incident upon said substrate.

90. (Previously Presented) The data storage media as in Claim 89, wherein said substrate further comprises an edge-lift height of less than about 8 μ.

91. (Previously Presented) The data storage media as in Claim 90, wherein said edge-lift height is less than about 5 μ.

92. (Previously Presented) The data storage media as in Claim 91, wherein said edge-lift height is less than about 3 μ.

93. (Previously Presented) The data storage media as in Claim 89, wherein said surface roughness is less than about 5 Å.

94. (Previously Presented) The data storage media as in Claim 89, wherein said substrate further comprises a mechanical damping coefficient of greater than about 0.04 at a temperature of 24°C.

95. (Previously Presented) The data storage media as in Claim 89, wherein said mechanical damping coefficient is greater than about 0.06 at a temperature of 24°C.

96. (Previously Presented) The data storage media as in Claim 89, wherein said substrate further comprises a radial tilt and tangential tilt independently of less than about 1° each, when measured in a resting state.

97. (Previously Presented) The data storage media as in Claim 89, wherein said substrate further comprises a first modal frequency greater than an operating frequency.

98. (Previously Presented) The data storage media as in Claim 89, wherein said substrate further comprises a core having a varied thickness.

99. (Previously Presented) The data storage media as in Claim 89, wherein said substrate consists essentially of plastic.

100. (Previously Presented) The data storage media as in Claim 99, wherein said plastic comprises a resin selected from the group consisting of polyvinyl chloride, polyolefins, polyesters, polyimide, polyamides, polysulfones, polyether imides, polyether sulfones, polyphenylene sulfides, polyether ketones, polyether ether ketones, ABS resins, polybutadiene, polyacrylates, polyacrylonitrile, polyacetals, ethylene-vinyl acetate copolymers, polyvinyl acetate, liquid crystal polymers, aromatic polyesters, polyvinyl fluoride, polyvinylidene fluoride, polyvinylidene chloride, and blends, copolymers, mixtures, reaction products, and composites comprising at least one of the foregoing resins.

101. (Previously Presented) The data storage media as in Claim 89, wherein said coercivity is greater than about 2,500 oersted.

102. (Previously Presented) The data storage media as in Claim 101, wherein said coercivity is greater than about 3,000 oersted.

103. (Previously Presented) The data storage media as in Claim 89, wherein the substrate further comprises another plastic portion disposed on a second side of said substrate opposite said first side.

104. (Previously Presented) The data storage media as in Claim 103, further comprising another data layer disposed on said second side.

105. (Previously Presented) The data storage media as in Claim 104, further comprising another additional layer disposed between said another plastic portion and said another data layer.

106. (Previously Presented) The data storage media as in Claim 89, wherein said plastic portion comprises a resin selected from the group consisting of polystyrenes, polyphenylene ethers, ethylene-tetrafluoroethylene copolymer, tetrafluoroethylene fluorocarbon polymer, and blends, copolymers, mixtures, reaction products, and composites comprising at least one of the foregoing resins.

107. (Previously Presented) The data storage media as in Claim 89, wherein said plastic portion comprises a resin selected from the group consisting of polycarbonate, and blends, copolymers, mixtures, reaction products, and composites comprising polycarbonate.

108. (Previously Presented) The data storage media as in Claim 89, wherein said plastic portion comprises a physical pattern.

109. (Previously Presented) The data storage media as in Claim 89, wherein said substrate further comprises metal.

110. (Previously Presented) The data storage media as in Claim 89, wherein said substrate is selected from the group consisting of metal, glass, ceramic, and combinations comprising at least one of the foregoing substrates,

wherein the plastic portion comprises a physical pattern,

wherein said plastic film has a film thickness of less than about 20 μ; and

wherein said substrate has a substrate thickness of about 0.8 mm to about 1.2 mm.

111. (Previously Presented) The data storage media as in Claim 110, wherein said substrate is metal.

112. (Previously Presented) The data storage media as in Claim 110, wherein said film thickness is about 0.5 μ to about 10 μ.

113. (Previously Presented) The data storage media as in Claim 110, wherein said physical pattern has a depth of about 20 nm to about 30 nm.

114. (Previously Presented) The data storage media as in Claim 110, wherein said substrate is glass.

115. (Previously Presented) A method for retrieving data, comprising:

rotating a storage media comprising a magnetic data layer and a substrate, wherein said magnetic data layer is in physical contact with the plastic portion, wherein said magnetic data layer has a coercivity of greater than about 1,500 oersted, wherein said substrate has a first side comprising a plastic portion, has a surface roughness of less than about 10Å, and has an axial displacement peak of less than about 500 μ under shock and/or vibration excitation when excited by a 1 G sinusoidal loading, and wherein said plastic portion has a thickness of less than about 50μ;

directing an energy field at said storage media such that said energy field is incident upon the data layer before it can be incident upon the substrate; and

retrieving information from the data layer via said energy field.

116. (Previously Presented) The method for retrieving data as in Claim 115, wherein rotating said storage media comprises rotating said storage media at a variable speed.

117. (Previously Presented) The method for retrieving data as in Claim 115, wherein said edge-lift height is less than about 5 μ.

118. (Previously Presented) The method for retrieving data as in Claim 115, wherein said mechanical damping coefficient is greater than about 0.06 at a temperature of 24°C.

119. (Previously Presented) The method for retrieving data as in Claim 115, wherein said substrate further comprises a radial tilt and tangential tilt independently of less than about 1° each, when measured in a resting state.

120. (Previously Presented) The method for retrieving data as in Claim 115, wherein said substrate further comprises a first modal frequency greater than an operating frequency.

121. (Previously Presented) The method for retrieving data as in Claim 115, wherein said substrate consists essentially of plastic.

122. (Previously Presented) The method for retrieving data as in Claim 121, wherein said plastic comprises a resin selected from the group consisting of polyvinyl chloride, polyolefins, polyesters, polyimide, polyamides, polysulfones, polyether imides, polyether sulfones, polyphenylene sulfides, polyether ketones, polyether ether ketones, ABS resins, polybutadiene, polyacrylates, polyacrylonitrile, polyacetals, ethylene-vinyl acetate copolymers, polyvinyl acetate, liquid crystal polymers, aromatic polyesters, polyvinyl fluoride, polyvinylidene fluoride, polyvinylidene chloride, and blends, copolymers, mixtures, reaction products, and composites comprising at least one of the foregoing resins.

123. (Previously Presented) The method for retrieving data as in Claim 115, wherein said coercivity is greater than about 3,000 oersted.

124. (Previously Presented) The method for retrieving data as in Claim 115, wherein said plastic portion comprises a resin selected from the group consisting of polystyrenes, polyphenylene ethers, ethylene-tetrafluoroethylene copolymer, tetrafluoroethylene fluorocarbon polymer, and blends, copolymers, mixtures, reaction products, and composites comprising at least one of the foregoing resins.

125. (Previously Presented) The method for retrieving data as in Claim 115, wherein said plastic portion comprises a resin selected from the group consisting of polycarbonate, and blends, copolymers, mixtures, reaction products, and composites comprising polycarbonate.

126. (Previously Presented) The method for retrieving data as in Claim 115, wherein said plastic portion comprises a physical pattern.

127. (Previously Presented) The method for retrieving data as in Claim 115, wherein said substrate further comprises metal.

128. (Previously Presented) A method for retrieving data, comprising:

rotating a storage media comprising a magnetic data layer, an additional layer having a thickness of less than about 1,000 Å, and a substrate having a first side comprising a plastic portion, wherein said addition layer is in physical contact with the plastic portion, wherein said magnetic data layer has a coercivity of greater than about 1,500 oersted, wherein said substrate has a surface roughness of less than about 10Å and an axial displacement peak of less than about 500 μ under shock and/or vibration excitation when excited by a 1 G sinusoidal loading, and wherein said plastic portion has a thickness of less than about 50μ;

directing an energy field at said storage media such that said energy field is incident upon the data layer before it can be incident upon the substrate; and

retrieving information from the data layer via said energy field.

129. (Previously Presented) The method for retrieving data as in Claim 128, wherein rotating said storage media comprises rotating said storage media at a variable speed.

130. (Previously Presented) The method for retrieving data as in Claim 128, wherein said edge-lift height is less than about 5 μ.

131. (Previously Presented) The method for retrieving data as in Claim 128, wherein said mechanical damping coefficient is greater than about 0.06 at a temperature of 24°C.

132. (Previously Presented) The method for retrieving data as in Claim 128, wherein said substrate further comprises a radial tilt and tangential tilt independently of less than about 1° each, when measured in a resting state.

133. (Previously Presented) The method for retrieving data as in Claim 128, wherein said substrate further comprises a first modal frequency greater than an operating frequency.

134. (Previously Presented) The method for retrieving data as in Claim 128, wherein said substrate consists essentially of plastic.

135. (Previously Presented) The method for retrieving data as in Claim 134, wherein said plastic comprises a resin selected from the group consisting of polyvinyl chloride, polyolefins, polyesters, polyimide, polyamides, polysulfones, polyether imides, polyether sulfones, polyphenylene sulfides, polyether ketones, polyether ether ketones, ABS resins, polybutadiene, polyacrylates, polyacrylonitrile, polyacetals, ethylene-vinyl acetate copolymers, polyvinyl acetate, liquid crystal polymers, aromatic polyesters, polyvinyl fluoride, polyvinylidene fluoride, polyvinylidene chloride, and blends, copolymers, mixtures, reaction products, and composites comprising at least one of the foregoing resins.

136. (Previously Presented) The method for retrieving data as in Claim 128, wherein said coercivity is greater than about 3,000 oersted.

137. (Previously Presented) The method for retrieving data as in Claim 128, wherein said plastic portion comprises a resin selected from the group consisting of polystyrenes, polyphenylene ethers, ethylene-tetrafluoroethylene copolymer, tetrafluoroethylene fluorocarbon polymer, and blends, copolymers, mixtures, reaction products, and composites comprising at least one of the foregoing resins.

138. (Previously Presented) The method for retrieving data as in Claim 128, wherein said plastic portion comprises a resin selected from the group consisting of polycarbonate, and blends, copolymers, mixtures, reaction products, and composites comprising polycarbonate.

139. (Previously Presented) The method for retrieving data as in Claim 128, wherein said plastic portion comprises a physical pattern.

140. (Previously Presented) The method for retrieving data as in Claim 128, wherein said substrate further comprises metal.

141. (Previously Presented) A hard disk storage media for data, said media comprising:

a hard disk substrate having a surface roughness of less than about 10Å, wherein the substrate has a thickness of less than about 1.2 mm;

a plastic film, wherein said plastic film has a film thickness of less than about 50 μ; and

a magnetic data layer disposed on said plastic film, wherein said data layer has a coercivity of greater than about 1,500 oersted;

wherein said magnetic data layer can be at least partly read from, written to, or a combination thereof by a magnetic field; and

wherein the storage media has a tilt of less than about 1°, measured in a resting state, wherein said tilt is selected from the group consisting of radial tilt and tangential tilt;

wherein one of the following conditions are met: (i) wherein said data layer is in physical contact with said plastic film; or (ii) an additional layer having a thickness of less than about 1,000 Å, wherein said additional layer is disposed in physical contact with said plastic film and is disposed between said data layer and said plastic film.

142. (Previously Presented) The storage media as in Claim 141, wherein said substrate has a Young's modulus of greater than about 70 GPa.

143. (Previously Presented) The storage media as in Claim 142, wherein said Young's modulus is greater than about 200 GPa.

144. (Previously Presented) The storage media as in Claim 141, wherein said substrate is selected from the group consisting of glass, ceramic, and combinations comprising at least one of the foregoing.

145. (Previously Presented) The storage media as in Claim 141, wherein said coercivity is at least about 3,000 oersted.

146. (Previously Presented) The storage media as in Claim 141, wherein said plastic film comprises a thermoplastic resin of the group consisting of polyetherimides, polyetheretherketones, polysulfones, polyethersulfones, polyetherethersulfones, polystyrenes, polyphenylene ethers, thermoplastic polyimides, and blends, copolymers, mixtures, reaction products, and composites comprising at least one of the foregoing resins.

147. (Previously Presented) The storage media as in Claim 141, wherein said plastic film comprises polycarbonate.

148. (Previously Presented) The storage media as in Claim 141, wherein said plastic film comprises a thermoset resin selected from the group consisting of epoxy, phenolic, alkyds, polyester, polyimide, polyurethane, mineral filled silicone, bis-maleimides, cyanate esters, vinyl, and benzocyclobutene resins, and blends, copolymers, mixtures, reaction products, and composites comprising at least one of the foregoing resins.

149. (Previously Presented) The storage media as in Claim 141, wherein said plastic film has a film thickness of less than about 20 μ.

150. (Previously Presented) The storage media as in Claim 149, wherein said film thickness is about 0.5 μ to about 10 μ.

151. (Previously Presented) The storage media as in Claim 141, wherein said substrate has a substrate thickness of about 0.8 mm to about 1.2 mm.

152. (Previously Presented) The storage media as in Claim 141, wherein said substrate is metal.

153. (Previously Presented) The storage media as in Claim 141, wherein said plastic portion comprises a physical pattern.

154. (Previously Presented) The storage media as in Claim 153, wherein said physical pattern has a depth of about 20 nm to about 30 nm.

155. (New) The storage media of Claim 1, wherein the plastic portion further comprises a material selected from the group consisting of microfibers, fibrils, nanotubes, and whiskers.

156. (New) The storage media of Claim 1, wherein the plastic portion further comprises a material selected from the group consisting of metal and carbon.

157. (New) The storage media of Claim 156, wherein the material comprises a form selected from the group consisting of microfibers, fibrils, nanotubes, and whiskers.

158. (New) The storage media of Claim 156, wherein the material comprises a form selected from the group consisting of particles, bubbles, microspheres, hollow fillers, fibers, and mesh.

159. (New) The storage media of Claim 1, wherein the plastic portion is a composite.

160. (New) The storage media of Claim 89, wherein the plastic portion further comprises a material selected from the group consisting of microfibers, fibrils, nanotubes, and whiskers.

161. (New) The storage media of Claim 89, wherein the plastic portion further comprises a material selected from the group consisting of metal and carbon.

162. (New) The storage media of Claim 161, wherein the material comprises a form selected from the group consisting of microfibers, fibrils, nanotubes, and whiskers.

163. (New) The storage media of Claim 161, wherein the material comprises a form selected from the group consisting of particles, bubbles, microspheres, hollow fillers, fibers, and mesh.

164. (New) The storage media of Claim 89, wherein the plastic portion is a composite.

165. (New) The storage media of Claim 141, wherein the plastic film is a composite.

166. (New) The storage media of Claim 141, wherein the plastic film further comprises a material selected from the group consisting of microfibers, fibrils, nanotubes, and whiskers.

167. (New) The storage media of Claim 141, wherein the plastic film further comprises a material selected from the group consisting of metal and carbon.

168. (New) The storage media of Claim 167, wherein the material comprises a form selected from the group consisting of microfibers, fibrils, nanotubes, and whiskers.

169. (New) The storage media of Claim 167, wherein the material comprises a form selected from the group consisting of particles, bubbles, microspheres, hollow fillers, fibers, and mesh.